

6-2005

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### Recommended Citation

Bawa, S. (2004). Reducing Child Malnutrition: How Far Does Income Growth Take Us? By Lawrence Haddad, Harold Alderman, Simon Appleton, Lina Song and Yisehac Yohannes: a review. *Economic and Financial Review*. 43(2), 107-112.

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## **Reducing Child Malnutrition: How Far Does Income Growth Take Us?**

**By Lawrence Haddad, Harold Alderman, Simon Appleton, Lina Song and Yisehac Yohannes**

*A Review by Sani Bawa*

### **I. Introduction**

Malnutrition is responsible for about half of all child mortality worldwide. It is caused by consuming less energy food to meet the body's needs, lack of essential nutrients, illness that deplete those nutrients, and undernourished mothers who give birth to underweight children. Malnourished children have lower resistance to infection; they are more likely to die from common childhood ailments like diarrhea and respiratory infections; and for those who survived, frequent illness saps their nutritional status, locking them into a vicious cycle of recurring sickness, faltering growth and diminished learning ability. Despite the adverse effects of the menace, progress in reducing its prevalence rates has slowed in the past two decades. In Sub-Saharan Africa, both the number and the prevalence of underweight children have remained high, with the rate reaching an average of 30 per cent between 1995–2000. Similarly, the rate of underweight children in Nigeria was 27 per cent during the same period. Given this, the goal of halving the prevalence of underweight children between 1990 and 2015—one of the targets for the Millennium Development Goals (MDG) for poverty and hunger—may not be met. This calls for an urgent solution to the problem.

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<sup>1</sup> Published in *The World Bank Economic Review*, Volume 17 Number 1, 2003

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The objective of the study was to systematically analyze the causal relationship between income growth and child malnutrition using a multi-country data. It thus contributed to the growth and poverty reduction debate by shedding more light on the impact of income growth on child malnutrition and whether such growth is enough to ensure a drastic reduction of malnutrition rate in developing countries. The paper was divided into three sections excluding the introduction. Section I contained the data and model while section II examined the results from the household surveys and cross-country analysis. The paper was concluded in section III.

## I. Summary of the Paper

The study utilized two data sources: the household surveys and cross-country data. The household surveys were obtained from 12 countries to cover a range of locations, spanning four continents. The measure of nutritional status (N) used is weight for age, converted into standardized units called z-scores. The study referred to children with a weight-for-age z-score of less than 2 as underweight. The authors estimated regressions for nutritional outcomes as a function of the log of per capita household expenditures. Additional regressors used include education levels of the child's mother and father, six dummy variables for age brackets, indicators for the type of drinking water and toilet used, dummy variables for ethnic background (in some countries), the height of the mother (where available) and demographic variables such as household size and the percentage of household which lies in different age groups. The study undertook two specifications of the model. Model 1 included expenditures but excluded health, water and sanitation infrastructure both external and internal to the household. Model 2 however, controlled for the variables excluded in model 1. The authors considered model 1 as a better representation of the total effect of resources in a long-run scenario. The models were estimated using

both OLS and Instrumental Variables techniques.

The cross-country data set covered 61 developing economies, with each country having at least two observations and spanning the period 1970–1995. The dependent variable was the prevalence of children under age five who are underweight for their age. This is matched with the corresponding year's value of per capita GDP expressed in 1987 U.S. dollars adjusted for the Purchasing Power Parity (PPP) rates as the independent variable. Other explanatory variables included in the regression were female secondary school enrolment, access to safe water, and decade dummy variables.

The household survey results indicated that the log of per capita household consumption had a positive relationship with the nutritional status of children as measured by weight-for-age in all the countries studied. The authors found the mean coefficient to be 0.54 (using their preferred estimates of model 1) implying that doubling household income will increase weight-for-age by half a standard deviation from the median for the reference population. To directly infer the effect of income growth on malnutrition rates, the authors sought to simulate the expected proportional reduction in malnutrition after sustained per capita income growth of 2.5 per cent a year, using the coefficients in model 1. The results indicated that only in 3 of the 12 countries—Jamaica, Morocco and Peru—does per capita income growth of 2.5 per cent result in halving of the malnutrition rate by 2015. The relative decline ranged from 13 per cent in Romania to 63 per cent in Peru, averaging 34 per cent in all the 12 countries.

Results from the cross-country analysis indicated a negative and significant effect of per capita GDP on malnutrition rates. The negative signs of the decade dummy variables also indicated declines in malnutrition rates overtime. Simulation results based on the estimated coefficients on the log of per capita GDP from the OLS regression indicated that a 2.5 per cent

annual growth in per capita GDP between 1995 and 2015 would reduce the malnutrition rate by 8 percentage points, or 32 per cent of the initial rate, compared with the average relative decline of 34 per cent for the 12 countries surveyed. According to the authors, the results refuted a hypothesis that per capita GDP growth fails to improve the nutritional status of the most vulnerable.

The authors concluded, based on their findings that, sustained per capita income growth will go a long way toward halving child malnutrition rates by 2015. However, malnutrition would persist in the face of rapid income growth in the absence of additional measures to address malnutrition directly. Thus, direct and effective nutrition and health interventions that could accelerate reductions in malnutrition in the short-run are urgently needed. Some of these interventions, according to the authors, include vitamin A supplementation for children under age five, iron supplementation for pregnant women and some type of nutrition education and community-based behaviour change initiatives, even though some of these initiatives are more effective than others.

## I. Comments and Conclusion

The study is structurally worthwhile and commendable as it shed more light on what must be done to reduce child malnutrition in developing countries one of the objectives for the Millennium Development Goals for Poverty and Hunger. The strength of the paper lies in the simplicity of analysis using both micro studies and cross-country regressions. The need to ensure a rapid and sustained per capita income growth over the next one decade and adopt direct nutrition and health interventions to enable developing countries reduce the menace was vividly demonstrated.

The study, however, assumed a sustained per capita income growth of at least 2.5 per cent per annum in all developing countries between 1995 and 2015 as used in the simulation. While the figure may appear optimistic, past trends in economic growth and the present realities depicts that the rate may not be achieved by most of the developing countries, thus, making it difficult to meet the MDG target for poverty and hunger. This is in line with the fact that only 3 of the 12 countries involved in the household survey achieved this growth rate over the 1990s, while 5 countries recorded negative growth rates. To achieve the 2.5 per cent sustained growth, therefore, developing countries need to initiate policies that promote economic efficiency, and implement programmes that may ensure a rapid growth in their per capita incomes, which the authors were silent on. This may include promoting more and better productive investments and education, ensuring macroeconomic stability, trade liberalization, privatization, diversification, among others. Meanwhile, the paper assumed a broad-based economic growth across countries. Yet, growth can be associated with rising inequality, which then tends to offset part of the gains from growth for the poor. Given this, rapid growth may not necessarily entail poverty reduction and drastic reduction in the prevalence of malnutrition. It can only assure this, provided it is accompanied by policies to promote access to education, health and social services, and by the provision of safety nets especially during adjustment periods (World Bank 1990, World Development Report).

Overall, the paper is relevant to Nigeria because both the micro studies and the cross-country regressions utilized data mostly from developing economies even though they differ appreciably in their economic situations. It shows clearly that to reduce poverty and hunger in the country, efforts must be made to formulate policies that would ensure a rapid and sustained per capita income growth that is seen to be pro-poor. The adoption of the new economic reform programme the National Economic Empowerment

and Development Strategy (NEEDS), which is focused mainly on wealth creation, employment generation, poverty reduction, corruption elimination and value re-orientation, and has four key pillars reforming government and its institutions, growing the private sector, implementing a social charter and reorienting the people with an enduring African value system - is a step in the right direction. In addition, the government may need to restore budgetary priority to agriculture as the engine of economic empowerment for the enhancement of human capacity in all sectors concerned with hunger reduction in Nigeria. The government should also implement and prioritize programmes that will improve the nutritional status of vulnerable groups as well as improving market functions in ways that will create synergies and result in positive transformations. Finally, the government should implement policies that would gradually increase the productivity of small-scale farms in less-favoured areas to enable the farmers increase yields of staple crops as well as generate marketable surpluses.